Responses to EPA's and RIDEM's 2nd Round of Comments to the Draft Human Health Risk Assessment, Draft Screening Level Ecological Risk Assessment, and Draft Phase I Remedial Investigation Report of IR Program Site 16

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TABLE OF CONTENTS

NAVY'S RESPONSES TO EPA'S COMMENTS TO THE RESPONSE TO COMMENTS ON THE DRAFT SITE 16 PHASE I REMEDIAL INVESTIGATION REPORT

GENERAL COMMENTS

Comment 2.1: With respect to the additional comment that "localized areas of relatively fast ground-water velocity can only have effectively flushing action if the water has somewhere to go...," the information contained in the report (hydraulic gradient, conductivity values, and non-existent organic matter in the deep wells and/or bedrock) suggests that the groundwater does have "somewhere to go." It is also the Navy that is stating that groundwater and contaminants appear to be migrating from Building 41 to the northeast along a preferential pathway. If there is an interpretation that contamination has migrated from Building 41 and "stopped" or markedly slowed after reaching the vicinity of point of blockage or retardation it should be discussed and documented.

Response — Ground-water flow rate along a particular pathway could only move as fast overall as it does through the area of lowest permeability. The point was that the EPA reviewer had pointed out a specific area (well) of relatively high permeability that seemed to be applied along the entire pathway to support the hypothesis of relatively rapid flushing of the apparent source to further support a more recent spill event or spill event in other area(s). The Navy's reference to an apparent northeast trending preferential pathway only meant an area of relatively higher flow rate than the surrounding area, but not necessarily an area of rapid flushing along the entire subsurface pathway.

SPECIFIC COMMENTS

Comment 3: *Comment not addressed.* Based upon the data presented in the Site 16 Phase I Remedial Investigation Report, while some component of groundwater flow from Building E-319 likely flows toward Narragansett Bay it is not entirely clear where local groundwater flows in the area southeast of Building 41. Also, it is noted that while the shallow groundwater flow is stated to be toward Narragansett Bay, the bedrock groundwater flow direction presented in the Phase I Remedial Investigation is to the northeast along an interpreted bedrock trough. Extension of this deep groundwater flow could be traced directly up gradient to Building E-319. If the contaminants originated as a dense, non-aqueous phase liquid (DNAPL) it is very possible that contaminants could also have migrated to depth from the location of Building E-319 and

from there, along the inferred bedrock trough to the northeast. Therefore, further evaluation of the vicinity of Building E-319 is warranted.

Response — The planned Phase II RI rock well location 'G' along Dogwood Street appears to be downgradient of the southeastern half of Building E-319. In addition, to address this EPA concern, the Navy proposes to relocate the MW16-05R2 location deep rock well to the MW16-17 well cluster as an 'R' well to be approximately downgradient of the northwestern half of Building E-319. The Navy feels that addressing this EPA concern at this time would be a better use of the current funds than currently assuming the need for a 'R2' well at the MW16-05 cluster. The need for a deep rock ('R2') at the MW16-05 cluster would be based on the results of the MW16-05R well planned for the Phase II RI.

Comment 6: *Comment not addressed.* The proposed additional work will be reviewed in detail when the Site 16 Phase II Work Plan is received. This issue, however, is still unresolved, largely in part due to data gaps or "silence in the data." That "silence in the data" is due to its absence at key locations, in particular, a lack of shallow, intermediate, deep, and bedrock groundwater monitoring wells within the Site 16 area. The Navy may be correct in their "interpretations, speculations and opinions." However, at the present time, there is insufficient data in key areas to support the Navy's "hypothesis."

It should also be noted that while high levels of CVOCs were not detected in MW16-03D, this well is not in rock. However, even if it were, due to nature of groundwater flow in fractured rock, it is possible that any one particular rock well could miss overall bedrock groundwater contamination.

EPA's concern is that contaminants may have migrated downward into the weathered and/or fractured bedrock from releases within the central area of Site 16, including the fill material, the Former Fire Training Area, or other historic operational activities to the southeast. As indicated in EPA's comments, there is a concern that CVOCs have migrated to the east and southeast within the Site 16 area, where there is a paucity of shallow, intermediate and deep groundwater monitoring data.

In particular, EPA would again call attention to the available data collected by the Navy in this vicinity. The soil boring log for MW16-02, one of the wells stated to be along the preferential pathway from Building 41 with elevated CVOCs in the bedrock (MW16-02R) and the overlying deep well (MW16-02D) had PID readings from 18 feet below the ground surface to a

depth of 68 feet. The readings generally increase with depth suggesting a historic surface release in the central or southeast area of Site 16.

Response — Comment noted. The additional monitoring wells proposed for the Phase II RI are planned to fill data gaps and address these issues.

Comment 10: EPA takes issue with the statement of any attempt to estimate past hydrogeological regime using "gross assumptions" with output being no more than "speculation." Investigative analysis and problem solving often requires initial "gross assumptions" in order to attempt to understand and fully evaluate the observed data, (sometimes known as an "initial hypotheses"). This is especially critical where there are apparent data gaps. EPA believes that 8 to 9 acres are not an insignificant area. Hydraulic loading can result in periodic mounding especially when the surface is permeable, free of vegetation and also is subject to additional hydraulic loads as occurs when water is applied to the ground surface to fight fires.

Response — Comment noted.

Comment 12: EPA takes issue with the editorial statement that "This appears to be a hypothesis based upon the silence in the data." The RQD value is real.

Response — Agreed, the RQD values are real where they are available.

Comment 14: EPA's reference to a data gap relates to the Navy's "hypothesis" that contaminated groundwater originates from Building 41 and extends migrates to the northeast. If that is the case, additional data is necessary to show that deep groundwater does not continue to flow to the southeast, as the Navy states that it does from Building E-319. To that extent, EPA believes there is a data gap. Although additional data may clarify the situation, the presently available data drives the excessive amount of non-constrained "hypotheses" on both parts.

Response — Comment noted. However, based on the available October 1995 water level elevation data for 7 deep piezometers (since abandoned) illustrated on Figures 8A and 9 (Nov'95 Modified Work Plan Addendum for Operable Unit at NCBC Davisville), the deep overburden ground-water zone flows toward the southeast in the Buildings 319 and E-319 area. Also as stated previously, the additional well locations proposed for the Phase II RI in this area are anticipated to refine the hydrogeologic understanding. Also, piezometers PGU-Z4-03S/D have been repaired and resurveyed and will be included in future water level measurement events.

Comment 16: *Comment not addressed.* It is assumed that the aquifer may be heterogeneous. However, how do the hydraulic conductivity values relate to various stratigraphic sequences and/or locations?

Response — Table 3-4 (attached) of the Draft Phase I RI report had been re-organized into the various descriptive soil types encountered. However, the heterogeneity of the soil apparently supercedes the general descriptive soil types of the USCS. No correlation between hydraulic conductivity values and the soil types is apparent.

Comment 21: It is acknowledged that the data does not indicate the presence of DNAPL. However, that was not the point of the comment. The comment reflects the concern over an absence of data within the central Site 16 area, especially to the east and southeast in regards to shallow, intermediate and deep groundwater monitoring wells. The proposed locations of any soil borings, monitoring wells, and/or piezometers will be evaluated during review of the Site 16 Phase II Work Plan.

Response — Comment noted.

Comment 23: EPA is concerned that the methods used to test the soils at the MW16-07 location did not target the contamination. During the Phase II RI, EPA requests the navy use a different method to determine what type of contamination the high PID hits from the boring logs and MIP logs was. Method 9071B, as proposed in the Building 41 subsurface investigation, would be acceptable.

Response — To address this concern, the Navy proposes to collect a soil sample from the MW16-07 location from a depth of 10 to 12 ft below ground surface for Method 9071B analysis and petroleum hydrocarbon fingerprinting. This depth interval had the highest soil sample headspace vapor field measurement during drilling of the deep well of this cluster, is within the ground-water table smear zone, and is within the increasing portion of the PID log obtained for the associated MIP16-07 location.

Comment 24: The statement that the contamination in deep groundwater "appears to be overshadowed by the deep CVOC plume that appears to have migrated northeast from beneath Building 41" is, as the Navy has described many of EPA's interpretations, only "speculation," "opinion," and a "hypothesis." It may not be supportable due to an absence of data within the Site 16 Stage I area, beneath Building 41, the RR yard, and Building E-319.

Response — Comment noted. Also as stated previously, the additional well locations proposed for the Phase II RI are anticipated to refine the hydrogeologic understanding.

Comment 30: *Comment partially addressed.* It is EPA's opinion that the additional work proposed for the Site 16 Phase II Remedial Investigation would not appear to resolve this issue. In particular, MW16-26D, while apparently hydraulically up gradient from the Site 16 area, is also apparently down dip of the silt layer presented on Cross Section A-A'. The fill unit shown on the Cross Section lies at the top of this unit. In the absence of groundwater quality data for the shallow or intermediate zones at the MW16-26D location it is not possible to ascertain whether contaminants released in that vicinity have migrated down dip along the silt lens. However, the proposed locations of any soil borings, monitoring wells, and/or piezometers will be evaluated during review of the Site 16 Phase II Work Plan.

Response — Comment noted. However, it should be considered that the associated MIP16-W03 had no significant ECD or PID response. Additionally, during drilling of MW16-26D and field measurement of soil sample headspace, there were no PID detections of vapors.

Comment 31: *Comment partially addressed.* See Comment 30 above. Also, in regard to shallow wells, there is an absence of water table elevation data in a large segment of the eastern half of the Site 16 central area. A shallow well at the location of MW16-29 still appears to be warranted since the Navy has not determined the nature and extent of the screening hits at locations MIP-26 and E-1.

Response — The Navy proposes to address the MIP ECD low responses from approximately 2 to 6 ft below ground surface at locations MIP16-26 and MIP16-E01 by installing a shallow well (currently referred to a location X-S) adjacent to the MIP16-26 location.

MW16-29D is located approximately crossgradient from the MIP16-26 and MIP16-E01 locations and is approximately 35 ft southeast of MIP16-23, where there were no significant ECD or PID response. Additionally, during drilling of MW16-29D and field measurement of soil sample headspace, there were no PID detections of vapors until 50 ft below ground surface. Therefore, the Navy does not believe that installation of a shallow well at MW16-29 would assess the MIP ECD low responses from approximately 2 to 6 ft below ground surface at locations MIP16-26 and MIP16-E01.

Comment 32: *Comment partially addressed.* At the present time, the shallow groundwater flow pattern is unresolved. It may, as the Navy has interpreted on Figure 3-10, be entirely to the northeast. However, elsewhere in these responses to comments, the Navy states that the Stone and Webster work indicates shallow groundwater from the vicinity of Building E-319 flowing to the southeast. A concern that EPA has, especially in view of the available MIP and PID data and the lack of local shallow groundwater elevation data to the east and southeast of Building 41, is that the location of the groundwater divide between northeast and southeast groundwater flow is not known. Water table elevation data at the location of MW16-08 and other locations is considered important in helping to resolve this issue.

Response — For the Phase II RI, the Navy plans to install 9 intermediate depth wells east and south of MW16-08D and east of Building 41. Because these wells are typically planned to be screened above the silt layer (where present), there would be no overlying confining layer. Therefore, the water levels to be measured in these planned wells should be representative also of the shallow zone and be sufficient to fill in the gaps in the contouring of the water surface in this area.

Comment 33: *Comment partially addressed.* See Comment 32, above. EPA does not concur that shallow wells are not necessary at the locations noted. A review of Table 1 and Figure A does not indicate any planned shallow groundwater monitoring or observation wells in the area east of Building 41.

Response — There were no significant MIP ECD or PID responses in the shallow zone at locations east of Building 41. Additionally, during drilling of the Phase II RI wells (also located in that area) and field measurement of soil sample headspace, there were typically no elevated PID detections of vapors down to 20 ft below ground surface. The need for shallow wells in this area could be re-assessed based on the findings of the intermediate depth wells planned for this area during the Phase II RI.

Comment 34: *Comment partially addressed.* See Comment 33 above.

Response — Refer to the response to Comment 33 above.

Comment 35: *Comment partially addressed.* See Comment 33, above. EPA does not concur that shallow wells are not necessary at the locations noted.

Response — Refer to the response to Comment 33 above.

Comment 36: *Comment not addressed.* EPA would suggest that historical uses of the site that could have contributed arsenic are the fill material that is documented on the site soil boring logs and cross sections, and the creosote or wood preserving areas. According to the Pollution Prevention and Abatement Handbook, World Bank Group, July 1998: "The largest contributions of arsenic in terrestrial water are ***landfills***, mines, pit heaps, wastewater from smelters, and ***arsenic containing wood preservatives.***" Landfills, even small ones, contain a variety of materials that contribute arsenic to ground and surface waters, including coal ash, or waste pesticides and herbicides, incinerated preserved wood, etc. The site fill material appears to contain material not classified as "clean fill." Additionally, arsenic was a common constituent of pesticides and herbicides that could have been used in the past and applied generally in the area.

Response — Comment noted. Regarding the 'site fill' portion of the comment, the historical data for this site indicates reworking of the site soil during the heavy equipment operator training activities rather than landfilling activity. The use of 'fill' on the boring logs and cross sections was not meant to indicate landfilling of the area, but rather that the soil was not in its original naturally deposited state. Perhaps a better wording on the boring logs and the cross sections would be 'reworked soil.'

RIDEM RI

Comment 1: *Comment not addressed.* This comment is in regard to the issue of elevated reporting limits for Vinyl Chloride and 1,1- Dichloroethane (see response to RIDEM comment #1). The compounds that appear to be the cause of the problem are those that are typically considered to be field and lab contaminants. If acetone and methylene chloride are not contaminants of concern at this site, then corrective action needs to be initiated in the field and/or the lab to minimize the level of contamination. Once the problem has been corrected, then the samples need to be resampled and reanalyzed to try and report these compounds with reporting limits below the RIDEM residential direct exposure criteria.

Response — Please refer to the 2nd response to RIDEM General Comment 1.

TABLE 3-4 MODIFIED SUMMARY OF HYDRAULIC CONDUCTIVITY ESTIMATED FROM SLUG TEST DATA SITE 16, NCBC DAVISVILLE

Well Designation	Screen Internal (FBGS)		Hydraulic Conductivity K (ft/d)		Geologic Unit Screened
	Top	Bottom	Rising Head	Falling Head	
SAND					
MW16-26D	40	49	155.0	10.33	Silty Sand (1) Sand (5.5) Gravelly Sand and Silt and weathered rock (2.5)
MW16-23D	50	60	18.99	9.565	Sand (10.5) Weathered Phyllite (1.5) Gravelly Sand (3)
MW16-02S	5	15	#	#	Sand (10)
FILL					
MW16-07S	7	17	#	#	Fill (sandy silty) (10)
MW16-06S	7	17	N.M.	37.53	Fill (sandy silty gravelly) (7) Silt (2) Sand (1)
MW16-05S	8	18	46.0	47.53	Fill (sandy/silty) (2.5) Silty Sand (1) Sandy Silt (4) Sand (2.5)
MW16-04S	3	13	95.06	71.30	Fill (sandy) (5.2), boulders and rip rap (2) fill (sandy) (2.8)
MW16-03S	3	13	39.61	36.56	Fill (sand to silty sand) (10)
GRAVELLY SAND/SANDY GRAVEL					
MW16-25D	46	58	456.9	N.M.	Silty Sand (3.5) Sand (2.5) Gravelly Sand (6)
MW16-29D	44.5	54.5	**	**	Silty Sand (3.5) Gravelly Sand (6.5)
MW16-24D	50	62	274.1	19.27	Sand (2.5) Sandy Gravel (5.5) Sand (0.5) Sand and Silt with Phyllite Fragments (3.5)
MW16-21D	51	61	83.88	11.88	Gravelly Sand (10)
MW16-14D	52	62	118.8	7.505	Gravelly Sand (4) Boulder (1.5) Gravelly Sand (4.5)
MW16-09D	55	65	9.506	1.517	Sandy Gravel (2) Sandy Silt and Gravel (3) Gravelly Sand (5)
MW16-15D	46	56	203.7	47.53	Silty Sand (1), Gravelly Sand to Sand and Gravel, Sandy Gravel (9)
MW16-13D	57	67	6.423	11.88	Silty Gravelly Sand (1) Sand and Gravel (6) Sandy Gravel (3)
MW16-18D	42.5	52.5	178.2	16.02	Silty Gravelly Sand (1.5) Gravelly Sand (8.5)

Well Designation	Screen Internal (FBGS)		Hydraulic Conductivity K (ft/d)		Geologic Unit Screened
	Top	Bottom	Rising Head	Falling Head	
MW16-28D	54.5	64.5	**	**	Gravelly Sand (10)
MW16-02D	54.5	67	75.05 95.06 101.9	N.M.	Gravelly Sand (10)
SILTY GRAVELLY SAND/ SILTY SANDY GRAVEL					
MW16-06D	38.5	44.5	303.3	424.6	Silty Gravelly Sand (3.5) Sandy Gravelly Silt (2.5)
MW16-08D	40	55	68.74	137.5	Sand (3), Silty Sand (1) Silty Gravelly Sand (4) Silty Sand and Gravel (6) Sand and Gravel (1)
MW16-07D	27.5	37.5	33.95	32.41	Sandy Silt (2.5) Silty Sandy Gravel (2) Sandy Silt and Gravel (5.5)
MW16-04D	43	53	79.22 12.96 89.1	71.30	Silty Gravelly Sand (1) Sand (3) Boulder (2) Silty Gravelly Sand (4)
MW16-17D	57	64	4.321	7.505	Boulder (1) Gravelly Silty Sand (3) Boulder (1) Gravelly Silty Sand (4) Boulder (1)
MW16-22D	52	62	101.9	118.8	Silty Sand (1), Sand and Gravel (4) Sandy Gravelly Silt (0.5) Silty Gravelly Sand (4.5)
MW16-27D	54	64	**	**	Sand (1.5) Silty Sandy Gravel to Silty Sand and Gravel (8.5)
SILT/SILTY LAYERS					
MW16-01S	17.5	27.5	N.M.	**	Sand (4.5) Silty Sand (5.5)
MW16-05D	42	52	35.65	188.0	Sand (2.5) Sandy Silt (1) Sand (0.5) Sandy Silt (1.5) Sand (1.5) Sandy Silt (1) Silty Gravelly Sand (2)
MW16-20D	39.5	49.5	330.4	2.852	Sand and silt (4.5) Gravelly Silt (4) Weathered Rock (1.5)
MW16-10D	48.5	58.5	142.6	2.852	Silt (1.5) Gravelly Silt (4) Boulder (1) Silty Sand and Gravel (3.5)
SAND/SILT/GRAVEL/WEATHERED ROCK					
MW16-03D	38.5	48.5	713.0 713.0 142.6	N.M.	Silty Sand (2.5) Boulder (1.5) Gravelly to Silty Gravelly Sand (6)
MW16-01D	48.5	58.5	158.4 71.3 89.12		Silty Sand (3) Boulder (1.5) Gravel (4) Quartzite (1.5)
MW16-11D	53.5	63.5	12.40	4.753	Silty Sand and Gravel (4.5) Gravel (2) Sand (2.5) Rock (1)

Well Designation	Screen Internal (FBGS)		Hydraulic Conductivity K (ft/d)		Geologic Unit Screened
	Top	Bottom	Rising Head	Falling Head	
MW16-12D	52	62	118.8	23.0	Silt (2), Sand (4) Silty Sand and Gravel (2) Sand (1) Gravel (1)
MW16-16D	54	64	**	**	Sand (1.5) Boulder (2.5) Silty Sand (2) Sand (1) Weathered Rock (3)
MW16-19D	45.5	54.5	93.91	110.7	Silt (1) Weathered Phyllite (2.5) Phyllite (6.5)

** No measurable water level change during slug test.
# Water table too low to fully submerge slug. No test run.

NOTE: Where multiple slug tests were taken, all readings are shown.
FBGS = Feet below ground surface.
ft/d = Feet per day.
N.M. = Not measured.

NAVY'S RESPONSES TO EPA'S COMMENTS TO THE RESPONSE TO COMMENTS ON THE DRAFT SITE 16 HUMAN HEALTH RISK ASSESSMENT

New EPA Comment: During EPA's first review of the draft human health risk assessment, we did not notice that there was no description of the dust inhalation parameters in the text at Section 2.2.4.1. Similarly, we did not notice that there was no description of the method used to calculate the concentration of contaminants in dust, presumably based on the soil concentration. Please provide these descriptions in the final draft.

Response — The following text will be provided in HHRA Section 2.2.4 to clarify the dust inhalation calculations:

"The HHRA addresses the potential for site soils to be entrained into ambient air through wind erosion and other disturbances. To estimate COPC concentrations entrained from soil into ambient air, a particulate emission factor (PEF) was used. The PEF equation and calculations are provided in Appendix B (Table 5-59) and are consistent with EPA Soil Screening Guidance (EPA 1996). Multiplication of the COPC concentration in soil by the PEF yields a conservative estimation of ambient air concentrations."

Additionally, the inhalation parameters provided in Table 4.X for inhalation of soil (from air) will be added to the text. Specifically, inhalation parameters from Table 4.1 for the resident adult will be added to the text in Section 2.2.4.1. The inhalation parameters provided in Table 4.2 for the resident child will be added to the text in Section 2.2.4.2. The inhalation parameters provided in Table 4.3 for adult recreational users would be added to the text in Section 2.2.4.3. The inhalation parameters provided in Table 4.4 for child recreational users will be added to the text in Section 2.2.4.4. The inhalation parameters provided in Table 4.5 for construction workers will be added to the text in Section 2.2.4.5. The inhalation parameters provided in Table 4.6 for commercial workers will be added to the text in Section 2.2.4.6.

GENERAL COMMENTS

Comment 3: The original comment questioned the selection of both cis- and total 1,2-DCE as COPCs. The response indicates that text will be added to clarify method discrepancies and the conservative treatment of the data in the HHRA. The explanation should include a comparison of the

laboratory reporting limits of these compounds and their affect on the calculation of the arithmetic averages and exposure point concentration calculations.

Response — The following text will be added to the end of Section 2.6.1 of the Uncertainty Assessment:

"Additional uncertainty lies in the HHRA evaluation of 1,2-DCE. Both cis- and total 1,2 DCE were quantitatively assessed; although this may double count the potential effects of cis-1,2-DCE. The analytical method used to determine the concentrations of cis-1,2-DCE and trans-1,2-DCE was EPA SW846 8260B. Total 1,2-DCE was determined based on a rounded summation of the cis and trans concentrations by the laboratory. Based on the detection in some samples of the cis isomer at greater concentrations than the total, both cis and total were assessed in the HHRA to be conservative. However, quantification of risks of both cis- and total 1,2-DCE is quite conservative and may overestimate risks."

The following clarification was provided by the laboratory: The MDL (method detection limit) studies are performed annually to determine laboratory PQLs (practical quantitation limits). Generally the PQL is 3-5 times the statistically derived MDL. Total 1,2-DCE is the summation of the individual results for cis and trans. If the result from the raw data (quantitation report) for cis or trans is less than 10 ppb we use one significant figure. If the raw result for cis or trans is greater than 10 ppb we use two significant figures. The differences you have seen with the total 1,2-DCE results are probably a function of our rounding/significant figures rules of reporting.

In addition, the following text will be added to the end of Section 2.6.2.1 of the Uncertainty Assessment:

"Additional uncertainty exists for samples with elevated detection limits. For samples with elevated detection limits for a chemical that was not detected, use of one-half the detection limit as a surrogate value introduces greater uncertainty in the quantification of these samples. Based on the greater lack of certainty in the actual concentration of the chemical in these samples, bias may be either high or low. This potential uncertainty is also present in the calculation of statistics for each chemical, such as the arithmetic average or the 95 UCLM. However, as these statistical measures are based on all of the samples analyzed for a chemical, the uncertainty associated with one or a few samples is minimized by the inclusion of the rest of the data."

Comment 4: The original comment addressed the elimination of contaminants of potential concern at the initial stage of the HHRA using a background screening procedure. The response to this comment indicates that the HHRA work plan included this procedure; however, the Navy has previously been informed of the EPA's position regarding this procedure during the review of both the draft work plan and the Response to Comments package. The EPA clearly indicated that the background screening procedure utilized at the initial stage of the HHRA is unacceptable. This issue has not been resolved.

However, given the pending reconciliation of the arsenic data, as requested elimination of arsenic as a COPC based on a low frequency of detection is appropriate.

Response — Comment noted. Arsenic will be removed based on low frequency of detection (less than 5 percent of the samples) and background.

Additionally, the following will be added to the Uncertainties in Risk Characterization section:

1) Regarding the risk associated (quantitatively) with the consumption of the EPC concentration of arsenic in GW for Site 16. A note will be added stating the potential CTE and RME risks associated with the consumption of background Arsenic ground-water concentration.

2) The Site 16 EPC arsenic ground-water concentration is significantly less than the EPA proposed new MCL (10 µg/L) for arsenic.

3) Site 16 is in an area classified as a GB aquifer by RIDEM.

4) "The Navy screened out arsenic as a COPC in ground water for the quantitative human health baseline risk assessment due the detected concentrations being less than relevant background ground-water concentrations (in accordance with CNO Policy, Sept. 2000) and due to a low frequency of detection across the site. While EPA disagrees with screening out chemicals as COPCs due to background concentrations, EPA does agree with screening out arsenic as a COPC due to a low frequency of detection for the Site 16 Phase I RI HHRA."

Further, the following will be added to the Conclusions section of the Phase I RI HHRA:

1) RIDEM disagrees with some of the methodology of this Phase I RI risk assessment.

2) Additional ground-water and soil data will be collected as part of the Phase II RI. This data will be used to develop a Phase II RI risk assessment.

3) The Navy will issue a Phase II RI risk assessment that will address RIDEM regulations.

Comment 5: Navy declines to assess risks of seep sediment and seep water to a recreational receptor based on the fact that this pathway was not included in the final work plan. A recreational exposure pathway to seep sediment and seep water is considered to be reasonably foreseeable under future scenarios in which the public has access to these areas. In the absence of a risk evaluation to the contrary, EPA believes that there may be a risk to a future recreational receptor. Therefore, EPA is requesting this type of assessment as part of the Phase II RI. We are also requesting additional sediment samples to look for lateral contaminant concentration trends along the shorelines.

Response — The Navy will address the potential recreational pathways from surface water and sediment in the intertidal area, as part of the Phase II RI QAPP addendum preparation discussions.

Comment 6: Navy declines to evaluate the potential risks of VOC migration into indoor air because VOCs were detected only in deep wells, not shallow wells. Although vinyl chloride was found in only one shallow monitoring well (MW16-04S) at 0.9 µg/l, vinyl chloride was found at concentrations up to 14 µg/l in two rounds of direct push groundwater sampling. Since EPA believes that the past direct push data show a significant potential for migration and risk of vinyl chloride into the indoor air of future buildings and the future shallow well data will also indicate the presence of vinyl chloride, EPA is requesting modeling of indoor air concentrations and risk as part of the Phase II RI.

Response — The planned Phase II RI shallow monitoring well locations N, O, P, and Q (vicinity of the suspected former fire fighting training area) will be in the areas where previous probe-collected samples of ground water had elevated vinyl chloride concentrations (10 to 14 µg/L) detected; i.e., MIP16-12 (14 µg/L from 17 ft bgs), MIP15-16 (11 µg/L from 17 ft bgs), and 28-GW-04 (10 µg/L from 8 to 10 ft bgs). Analysis of samples from these wells will include vinyl chloride to confirm the concentration in the

shallow ground-water zone. Modeling for vinyl chloride indoor air concentration would be preformed if vinyl chloride is detected at elevated concentrations based on the Phase II RI sample results from all of the shallow monitoring wells.

Comment 7: Navy declines to recalculate groundwater exposure point concentrations according to EPA Region I guidance because the procedure was presented in the final work plan. The procedure in the final work plan (p.16 of final work plan) is the same as that requested by EPA in its comment. The final work plan states:

"Consistent with U. S. EPA, the 95% UCLM will be used as the RME chemical concentration estimate for all matrices with the exception of ground water. Ground-water RME exposure estimates will be based on the maximum concentration detected in wells. If multiple sample rounds are available for the well with maximum chemical concentrations, an average of all the rounds will be used as the ground-water RME exposure estimate."

The final work plan does not specify which type of exposure point concentration will be used for the CTE scenario. EPA Region I guidance (Risk Update No. 3, page 5, 1995) is as follows:

"As described in the August, 1994 Risk Updates, exposure point concentrations (EPCs) should be based on the 95 percent upper confidence limit (UCL) on the arithmetic mean for all media except groundwater. For groundwater, EPCs should be based on the arithmetic mean and maximum chemical concentrations. To evaluate central tendency exposures, combine the arithmetic mean with the central tendency parameters. High end exposures should be assessed by combining the maximum concentrations with high end exposure parameters."

It appears that the Navy has calculated CTE risks using average soil and average ground-water concentrations as the EPC, combined with CTE exposure parameters. It also appears that the Navy has calculated RME risks of soil using 95% UCLM soil concentrations and RME risks of ground water using the 95% UCLM (or maximum) ground-water concentration.
EPA interprets its guidance to mean that the EPC for both the CTE and RME **for all media except ground water** should be the 95% UCLM unless it is greater than the maximum, in which case the EPC should be the maximum concentration. **For ground water**, EPA Region I interprets its guidance to mean that the EPC for both the CTE and RME should be the maximum concentration, unless there are multiple rounds of analyses,

in which case the EPC for ground water should be the average concentration of multiple rounds in the well with the highest concentrations.

It appears that the Navy interpreted this guidance differently, using the average groundwater concentrations and average soil concentrations for the CTE, and the 95% UCLM for both ground water and soil as the RME. The result is that the calculated CTE risks are lower than they should be (Navy used average soil and ground-water concentrations, rather than upper end concentrations), and that the calculated RME risks of ground water are lower than they should be (Navy used 95% UCLM ground-water concentrations, rather than maximum concentrations). The Navy correctly used the 95% UCLM (or maximum) as the RME for soil, in accordance with the EPA Region I interpretation.

Since remedial decisions are based on the RME risks, there is no need to recalculate the CTE except for completeness. However, remedial decisions should not be modified based on the CTE risks in the draft document because they are lower than they should have been. The RME risks of soil are calculated correctly. Since the Navy should have used the maximum ground-water concentration (as stated in the work plan), rather than the 95% UCLM, for the RME risks of ground water, the ground-water risks should be recalculated and the text revised. It is acknowledged that this recalculation will not change the conclusion that ground-water risks exceed EPA risk limits. However, it may change some conclusions concerning cumulative risk for those receptors that have both soil and ground-water exposures. In addition, recalculation of RME ground-water risks will help to ensure that the PRGs are calculated correctly for the FS. For clarity at this site, the correct method for calculating EPCs is provided in the table below:

Medium	EPC for the CTE	EPC for the RME
Soil	95% UCLM, unless it is greater than the maximum, in which case use the maximum	95% UCLM, unless it is greater than the maximum, in which case use the maximum
Ground Water	Maximum, unless there are multiple rounds, in which case use the average concentration in the well with the highest concentration	Maximum, unless there are multiple rounds, in which case use the average concentration in the well with the highest concentration

Response — The Phase I HHRA will be revised to follow the recommendations for EPC derivation presented in the 1994 Region I Risk Update. For soil, the CTE and RME EPCs will be the lesser of the 95UCLM or the maximum. For ground water, the CTE and RME EPCs will be the maximum unless

there are multiple rounds, in which case the arithmetic mean concentration for the well with the highest detected concentration. This will be included in the Final Phase I HHRA.

SPECIFIC COMMENTS

Comment 10: **Page 2-21, 2-22, Sections 2.5.6.1 and 2.5.6.2:** The response to the original comment indicates that the text will be modified to reflect the appropriate levels. However, the original comment also requested that the distribution curve output of the IEUBK lead model be included with the results. The response does not indicate that the distribution curve output of the model will be included. Please also include the distribution curve output of the IEUBK lead model with the results.

Response — A distribution curve output from the model will be provided in an appendix of the HHRA.

Comment 16: **Tables 2.1 - 2.6.** As requested in the original comment, footnotes defining the data qualifiers will be added to these tables. To clarify the treatment of data associated with duplicate pairs, please provide an explanation of the treatment of duplicate pairs of sample results in Section 2.2.1.1, Data Quality Evaluation.

Response — The following text will be added to the end of the second paragraph in Section 2.2.1.1:

"For duplicate pairs in which only one sample was a non-detect, one-half the detection limit was used as a surrogate and the two samples were then averaged to represent the sample location."

Comment 19: **Tables 3.1 - 3.6:** In Tables 3.1 to 3.6, EPC values are identical for both the CTE and RME, as they should be (see response to Navy comment No. 7). The purpose of these columns in this RAGS D-type table is to identify the concentrations actually used for the CTE and RME risk calculations. However, Navy used the arithmetic mean concentration as the EPC for CTE calculations for both soil and groundwater. If the arithmetic mean concentration is used for calculating risk, it should be identified in the EPC columns. The fact that Navy's contractor put the correct values in the EPC columns, suggests that they knew that these concentrations were those that were supposed to be used for both the CTE and RME calculations. Another example of incorrect use of these tables is the fact that the maximum concentration was identified as the EPC for several chemicals in groundwater in Table 3.6, but these maximum

concentrations were not used in the risk calculation tables. For instance, the maximum detected concentration (5E-01 µg/l = 5E-04 mg/l)) of chloroform in Table 3.6 was identified as the EPC for both the CTE and RME. However, the concentration actually used (in Table B-37) for calculation of risk was 8.01 E-04 mg/l for the RME and 1.1E-03 mg/l for the CTE. The latter concentration is the average groundwater concentration from Table 3.6, not the maximum as stated under the EPC columns of Table 3.6. These spot checks and the incorrect use of average concentrations indicate that many of the EPCs identified in the EPC columns of Tables 3.1 to 3.6 were not actually used in the risk calculations. Tables 3.1 to 3.6 should be revised so that the concentrations in the EPC columns are those actually used in the CTE and RME risk calculations. As mentioned in the response to Navy comment no. 7, only the RME risk calculations for groundwater need to be revised since remedial decisions will be based on RME risks.

Response — Tables 3.1 through 3.6 will be revised to reflect the recommendations of the 1994 Region I Risk Update as stated in the previous response to Comment 7, above.

Comment 30: **Attachment B:** Evaluation of some responses to comments will require review of the final HHRA. Discrepancies associated with the central tendency intake calculations were found in the original review of the HHRA. Any corrections to these calculations will require review when the final HHRA is issued.

Response — Comment noted.

Comment 31: **Table B-42:** As in the Response to Specific Comment 30, the corrections associated with the averaging time used in Table B-42 will require a review of the final HHRA.

Response — Refer to the response to Comment 30, above.

NAVY'S RESPONSES TO EPA'S COMMENTS TO THE RESPONSE TO COMMENTS ON THE DRAFT SITE 16 SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT

GENERAL COMMENTS

Comment 1: The Navy disagrees with several suggestions for additional or alternative analyses based on the argument that the approved final work plan did not include such analyses. The Navy response to some other suggestions is that the issue raised by the comment "may be discussed" as part of the Phase II RI. EPA reiterates that the results of the draft screening level ecological risk assessment indicate that screening level sediment concentrations exceed ERL benchmarks; therefore, a baseline ecological risk assessment may be required under CERCLA to determine whether these potential risks are significant.

Although the Navy response to NOAA comment No. 3 supports the conclusion that contaminant concentrations have diminished appreciably since 1990, the available 2001 sediment sample data indicate that ERLs are exceeded by arsenic, copper, lead, nickel, chrysene, fluoranthene, pyrene, DDT, and PCB. According to the Navy response to NOAA comment No. 3, the Navy is not convinced that a baseline ERA for the sediment is appropriate because the screening level HQ values are less than 10, the area of sediment is small, and natural attenuation may be occurring. These arguments have some merit, but they should be discussed further as part of the Phase II RI, along with the comments identified below that for which the Navy has deferred further discussion.

Response — Any additional sediment work will be discussed and incorporated via an addendum to the Site 16 Phase II Remedial Investigation (RI) Quality Assurance Project Plan (QAPP). The related data quality objectives will be formulated as part of that addendum that is scheduled for Winter 2002.

Comment 2: The original comment cautioned that not using adequate literature BCFs for dioxins/furans might underestimate ecological risk. The response (also the response for Specific Comment 22) states that using the BCF of 1.59 for 2,3,7,8-TCDD would not alter the SLERA results, as the HQ for the robin is already greater than 1.0. This is an accurate response; the reviewer calculated an HQ of approximately 4 for dioxins for the robin using BCFs of 0.009 for plants and 1.59 for invertebrates, and the life history parameters

provided in the report. It is also recognized that the HQ for the red fox is so low that a revision in the BCF would not alter the results of the SLERA. For the record, however, the source referenced in the original comment does provide soil-mammal BCFs for dioxin compounds, contrary to the response.

Response — Comment noted.

Comments 3, 4, 5, 8, 13: The response notes that the Work Plan did not mandate this assessment. It is recognized that the Work Plan did not mandate this work. The Navy further states that the particular issues raised by these comments "may" be discussed as part of the Phase II RI. We suggest that this discussion must occur (rather than may occur) before EPA can agree that a baseline ecological risk assessment is unnecessary.

Response — In regards to original EPA Comments 3, 4, 5, and 13, and as touched upon in the Navy's response to EPA Comment 1 above, the Navy plans on including the items outlined by EPA in discussions related to the formulation of data quality objects for additional investigation related to sediment for Site 16 for an addendum to the Site 16 Phase II RI QAPP.

In regards to original EPA comment 8, the Navy will include a comparison of detected sediment concentrations to ERM values in an appendix of the Final Phase I SLERA. Additionally, as suggested by EPA, the Navy will include a discussion of this comparison in the uncertainty section of the SLERA.

NAVY'S RESPONSES TO RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT'S COMMENTS TO THE RESPONSE TO COMMENTS ON THE DRAFT SITE 16 SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT FEBRUARY 2002

GENERAL COMMENTS

Comment 1: Page 2, Section 1.1.1, Environmental Setting of Site 16, Paragraph 2, Sentence 3 - "Non-hydric plants dominated this rip rap area, and site-visit participants agreed that the area lacked wetland characteristics." – Please revise the sentence to state that under RIDEM wetland regulations open waters are considered to be wetlands whether they exhibit wetland characteristics or not.

Navy Response: We acknowledge the designation of open water as wetland in RIDEM (and federal) regulations. However, the SLERA was not directed at the open water of Allen Harbor, rather it was restricted to the terrestrial landmass at Site 16.

RIDEM Comment: While the SLERA was directed at the terrestrial landmass, a portion of the site abuts Allen Harbor which is open water. Simply because the plants, in this area, lack wetland characteristics does not mean that the area is not a wetland. Therefore, please revise the sentence as noted in the original comment.

2nd Navy Response: The following will be added to the text: "However, per the designation of open water as wetland in RIDEM (and federal) regulations, there is a wetland (Allen Harbor) located adjacent to the site."

Comment 2: Please state if the Navy has determined whether there are any rare or endangered species at this site.

Navy Response: The following sentence will be inserted at the end of Section 1.1.1 of the SLERA: "No rare or endangered species were identified during the site visit and examination."

RIDEM Comment: Please state if the Navy has coordinated with the Rhode Island Heritage Program 401-222-4700 ext. 4316 (Jane Calo).

2nd Navy Response: Based on the 1 April 2002 letter received from the RIDEM Heritage Program, '...there are no rare or endangered species or exemplary natural communities within Site 16'. This will be referenced in the Final Phase I RI SLERA text and a copy of the letter will be appended.

NAVY'S RESPONSES TO RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT'S COMMENTS TO THE RESPONSE TO COMMENTS ON THE DRAFT SITE 16 PHASE I REMEDIAL INVESTIGATION REPORT FEBRUARY 2002

GENERAL COMMENTS

Comment 1: Table 4-2, VOC Detected in Soil Samples - For Wells MW16-07S, MW16-07 dup., MW16-14D, and SB16-28 the detection limit for 1,1,-Dichloroethene and Vinyl Chloride are above the RIDEM residential direct exposure criteria. The Navy will need to resample to determine if there is an exceedance of these compounds at these locations. This could determine whether a residential deed restriction is required at these locations or some form of remediation is required.

Navy Response: Soil Sample MW16-14D was collected from 57.5 to 59.5 ft below ground surface (bgs) and is deeper that the RIDEM residential direct exposure criteria considers. The remaining samples were collected from 5 to 7 ft bgs (MW16-07S and MW16-07 dup) and 4 to 6 ft bgs (SB16-28) where elevated concentrations of other compounds have resulted in the increased detection limits. Resampling would not be expected to change the detection limits for samples from these locations.

RIDEM Comment: Please explain how the detection limits change based on elevated concentrations of other compounds and how this problem can be overcome. The concern is that the Navy may perform a remedial action that is not necessary.

2nd Navy Response: Based on discussions with the laboratory, for the SB16-28-04-06 sample, a lower detection limit was run and was in the hardcopy of the lab report, but not the EDD. This data provides a detection limit below the RIDEM residential direct exposure criteria for 1,1,-dichloroethene (200 µg/kg criteria with detection limit of 7 µg/kg) and vinyl chloride (20 µg/kg criteria with detection limit of 15 µg/kg).

The MW16-14D-57.5-59.5 sample had been analyzed at a lower detection limit, but the results had inadvertently not included in the report. These results have since been received and data validation completed. This data provide a detection limit below the RIDEM residential direct exposure criteria for 1,1,-dichloroethene and vinyl chloride.

Because the apparent sheen and odor of the MW16-07S-5-7 (and Dup) samples, they were directly analyzed at the medium level detection limit. During the Phase II RI, a sample from this depth interval will be collected within approximately 3 to 5 ft of MW17-07S for TCL VOC (at lower detection limits), oil and grease, and petroleum fingerprinting analyses.

Regarding the issue of how the detection limits change based on elevated concentrations of other compounds, the presence of a large peak on a gas chromatogram for compound with elevated concentration could have a broader peak base that could cover (hide) low concentration (small) peaks located close by on the chromatogram, increasing the detectable level of the small peak compound(s).

Comment 2: Section 5.7, Human Health Risk Assessment – The Navy utilized the Method 1 criteria of the RIDEM Site Remediation Regulations (amended 1996) to evaluate risks in the various media associated with this site. The Navy has concluded that there are no concerns for site soil and seep water. RIDEM disagrees with this conclusion. Various PAH compounds and metals are in exceedance of RIDEM Residential Exposure Criteria for both the soil and sediment samples. Therefore, RIDEM will require some form of remediation. Please note that many of the exceedances are in the marina area which is considered recreational in nature and therefore subject to the RIDEM Residential Direct Exposure Criteria.

Navy Response: The Human Health Risk Assessment was submitted as a separate document from the Draft Phase I RI Report, and followed the required EPA guidance for a CERCLA site.

RIDEM Comment: The Navy correct in that the Human Health Risk Assessment followed EPA guidance for a CERCLA site. Please be advised that this does not meet RIDEM requirements and therefore, RIDEM does not accept the results of said study.

2nd Navy Response: Comment noted. However, please note that the Navy will issue a Phase II RI risk assessment that will address RIDEM regulations.

NAVY'S RESPONSES TO RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT'S COMMENTS TO THE RESPONSE TO COMMENTS ON THE DRAFT SITE 16 HUMAN HEALTH RISK ASSESSMENT FEBRUARY 2002

GENERAL COMMENTS

Comment 1: The Navy has not yet to responded to RIDEM's 21 December 2001 Human Health Risk Assessment Comments.

Response — The Navy's responses to RIDEM's 21 December 2001 Human Health Risk Assessment Comments were submitted on 7 February 2001.

NAVY'S RESPONSES TO RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT'S COMMENTS TO THE RESPONSE TO COMMENTS ON THE DRAFT SITE 16 HUMAN HEALTH RISK ASSESSMENT FEBRUARY 2002

RIDEM Comment 1: Page 2-2, Section 2.1.3, Exposure Pathways and Receptors of Concern, Paragraph 3 – This paragraph notes that the residential scenario is included in this analysis as a conservative measure. Please revise this to state that the residential scenario is included because the land associated with the marina is subject to RIDEM residential criteria.

Navy Response: As stated in the text, residential use of Site 16 is not expected in the future. Therefore consideration of residential exposure is to be conservative. This discussion will remain in the text.

RIDEM Comment: The response is not acceptable. Under RIDEM Remediation Regulations, amended 1996, Section 3.58, the marina constitutes an unrestricted outdoor recreational area and is therefore subject to RIDEM Residential Exposure Criteria. Please revise the document in accordance with comment 1.

2nd Navy Response: The Navy understands RIDEM's view, and will address this issue in the Phase II RI HHRA. The following will be added to the Conclusions section of the Phase I RI HHRA:

1) RIDEM disagrees with some of the methodology of this Phase I RI risk assessment.

2) Additional ground-water and soil data will be collected as part of the Phase II RI. This data will be used to develop a Phase II RI risk assessment.

3) The Navy will issue a Phase II RI risk assessment that will address RIDEM regulations.

RIDEM Comment 2: Page 2-3, Section 2.1.3, Exposure Pathways and Receptors of Concern, Paragraph 2 – This section notes that surface soil is evaluated from 0 to 2 ft. below ground surface for the recreation scenario. As noted above, the recreation scenario is to be evaluated under residential conditions under RIDEM Remediation Regulations, amended 1996. Residential soil is to be evaluated from the surface to the top of the water table, not just the top two feet. Please revise the analysis accordingly.

Navy Response: The HHRA evaluation, including the definitions of the media of concern, follows the EA March 2000 Site 16 RI Final Work Plan. Total soil (surface

and subsurface soil, combined) is evaluated for the residential scenario. As a recreational receptor is only expected to contact surface soils, this receptor is evaluated for surface soil. As the recreational receptor is only likely to contact surface soils and this is in accordance with the work plan, the risk assessment will not be revised.

RIDEM Comment: Section 8.02(A)(i)(2) of the Remediation Regulations defines the residential exposure criteria to be applied throughout the vadose zone, except as noted. The marina portion of this site is subject to the residential criteria. The analysis will need to be revised accordingly.

2nd Navy Response: Refer to the response to Comment 1, specifically 'The Navy will issue a Phase II RI risk assessment that will address RIDEM regulations.'

RIDEM Comment 3: Page 2-3, Section 2.1.4, Risk Based Screening, Paragraph 1, Sentence 2 – This sentence states that any analyte in any medium for which the maximum measured concentration exceeded the risk-based screening concentration is retained as a COPC. This implies that if the concentration is below the risk-based screening concentration then the compound is no longer considered. Under the RIDEM Remediation Regulations, amended 1996, compounds cannot be excluded from the risk analysis until it is shown that there is no risk from that compound.

Navy Response: The HHRA evaluation, including the screening analysis, follows the EA March 2000 Site 16 Final RI Work Plan. The screening analysis follows both EPA Region I (Risk Update 5) and federal EPA (RAGS A, 1989) risk assessment guidance. As explained in the text and in these standard guidance documents, the screening values used in the screening analysis are highly conservative; a comparison of the maximum detected compound in a medium to the medium-specific screening value demonstrates no risk for that compound. The screening analysis will not be revised, but text will be added to the screening analysis discussion to clarify this.

RIDEM Comment: Sections 8.01(A & B) of the Remediation Regulations states in part that any individual carcinogenic/non-carcinogenic substance cannot individually exceed a certain level and cumulatively cannot exceed a certain level. The only way to ascertain that this criteria is met is to carry all detected compounds throughout the HHRA, i.e. compounds cannot be dropped out of the analysis because they are below some screening level. Therefore, it will need to be demonstrated that those compounds screened out of the analysis either individually or cumulatively do not pose a health risk.

2nd Navy Response: The following text will be added to the HHRA to clarify the conservative nature of the screening analysis:

"The Region 9 PRG table utilizes standard Region 9 EPA recommended exposure factors (e.g., residential exposure frequency is conservative at 350 days per year) to estimate contaminant concentrations that are considered protective of human health (EPA 2002). They are intended to be conservative and are applicable for use in a screening assessment to eliminate chemicals that are detected at levels below concern to streamline the risk assessment process (EPA 1989). The screening values used in this HHRA are based on specific, conservative fixed levels of risk. For carcinogens, this is 10^{-6}, which is the lower bound for potential acceptable carcinogenic risk as defined by the NCP (EPA). For non-carcinogens, the screening values are based on 0.1, which is one tenth of the acceptable non-carcinogenic threshold. These fixed risk levels are conservative to account for potential additivity or cumulative effects of multiple contaminants and are, thus, protective of human health. A more thorough discussion of acceptable risk is presented in Section 2.4, Risk Characterization, of the HHRA."

RIDEM Comment 4: General Comment – This risk analysis concludes in general that there are no unacceptable risks associated with this site from soil and sediment. Please be advised that this risk analysis does not conform to Method III RIDEM Remediation Regulations for determining risk at a site for the reasons noted above as well as others. Based on the data contained in the Remedial Investigation, for this site, various PAH compounds and metals are in exceedance of RIDEM Residential Exposure Criteria (Method I) for both soil and sediment samples. Therefore, RIDEM believes there are risks associated with these media. RIDEM does concur, however, that there are unacceptable risks associated with the groundwater.

Navy Response: The risk assessment evaluated PAHs and metals in soil per EPA federal and regional guidance and in accordance with the March 2000 work plan. Several PAHs and metals exceeded their screening values for soil and were then evaluated for potential risk in the risk assessment. The results of the risk assessment indicated that there are no unacceptable risks for soil at Site 16. The application at this point of RIDEM's non-site-specific values as the sole indicator of risk is not applicable in that the site-specific risk assessment has demonstrated no unacceptable risk.

Sediment was not included in the HHRA (in accordance with the March 2000 work plan).

RIDEM Comment: Based on the above comments it should be clear that this human health risk analysis does not meet the requirements of a site specific risk analysis in compliance with RIDEM Remediation Regulations. In order to keep the Navy in compliance with RIDEM regulations the only alternative left is to

compare the sample results with the Method 1 Criteria. Based on this there are exceedances for PAHs and metals under a residential scenario within the marina area. If the Navy wishes to perform a HHRA meeting RIDEM regulations because they believe that there is no risk at this site from soils it is more than welcome to do so. If not, RIDEM will utilize the Method 1 Criteria which demonstrates there is a risk from soils at the site and will require remedial action to abate the risk.

2nd Navy Response: Refer to the response to Comment 1.